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09/818,549	03/28/2001	Kohei Murao	1344.1064	9436

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
KIM, CHONG R	
ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 07/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/818,549	Applicant(s) MURAO, KOHEI	
	Examiner Charles Kim	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-10,13-18 and 21-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-10,13-18 and 21-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment and Arguments

1. Applicant's amendment filed on April 12, 2004 has been entered and made of record.

2. In view of applicant's submitted Information Disclosure Statement, the objection to the specification is withdrawn.

3. In view of applicant's amendment, the objection to the claims are withdrawn.

4. Applicant's arguments have been fully considered, but they are not deemed to be persuasive for at least the following reasons.

Applicants argue (page 8) that their claimed invention (claim 1) differs from the prior art because Takahashi "does not teach or suggest the claimed feature of calculating similarities taking into account a weighting set for each organ". The Examiner disagrees. As noted in the previous office action (pages 4-5), Takahashi discloses that the calculating step calculates similarities taking into account a weighting set. For example, Takahashi explains that the similarities calculation (equation 1) is based on the weight vector W=(w1, w2, ...wn) [col. 2, lines 36-64]. Takahashi also explains that an **optimized** weight vector is preferable because it provides better similarity calculations (col. 8, lines 37-49), and because the importance degree of the feature quantity elements are different for different types of anatomical features (col. 4, lines 2-19). In other words, Takahashi utilizes a different weighting set for different types of anatomical features. In this case, Takahashi does not explicitly disclose a weighting set for each organ. However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the weighting set of Takahashi so that it comprises a weighting set for

each organ. The suggestion/motivation for doing so would have been to enhance the similarity calculation results by optimizing the weighting set. Therefore, it would have been obvious to calculate the similarities, taking into account a weighting set for each organ.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 2, 5-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 1, the phrase "a diagnosis supporting program for controlling a computer, said program comprising:" in lines 2-3 renders the claim indefinite because it is unclear how a program can comprise the steps recited in lines 4-19. It appears that the applicant intended the phrase to read "a diagnosis supporting program for controlling a computer, said program performing the steps of:" Appropriate correction is required.

Referring to claim 1, the phrase "said feature extracting function" in lines 10-11 lacks antecedent basis.

Claims not mentioned specifically are dependent from indefinite antecedent claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 5-10, 13-18, 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Takahashi, U.S. Patent No. 6,292,577 ("Takahashi") and Kenet et al., U.S. Patent No. 5,836,872 ("Kenet").

Referring to claim 1 as best understood, Takahashi discloses a computer readable recording medium storing a diagnosis supporting program for controlling a computer, the program performing the steps of:

a. extracting image-wise feature quantities from a diagnosis target image (col. 7, lines 31-38),

b. retrieving reference images which are image-wise similar to the diagnosis target image out of a database stored with reference images and feature quantities of reference images, based on the feature quantity extracting (col. 8, line 50-col. 9, line 10 and figure 6),

c. calculating image-wise similarities between each of the reference images stored in the database and the diagnosis target image, respectively, by matching the feature quantities of each of the reference images stored in the database with the feature quantities of the diagnosis target image [col. 8, lines 50-65. Note that sim(X, Y) is interpreted as the similarity calculating function],

wherein the retrieving retrieves reference images in order of similarity as calculated by the calculating (col. 10, lines 18-22),

wherein the calculating calculates similarities, taking into account a weighting set [col. 2, lines 36-64. Takahashi explains that the similarities calculation (equation 1) is based on the weight vector W=(w1, w2, ...wn)].

Takahashi does not explicitly disclose a weighting set for each organ. However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the weighting set of Takahashi so that it comprises a weighting set for each organ. The suggestion/motivation for doing so would have been to enhance the similarity calculation results by optimizing the weighting set (col. 8, lines 37-49). Therefore, it would have been obvious to calculate the similarities, taking into account a weighting set for each organ.

Takahashi does not explicitly disclose that the feature quantity extracting function extracts image-wise feature quantities of a lesion position detected by a lesion position detection function. However, this feature was exceedingly well known in the art. For example, Kenet discloses a lesion position detecting function for detecting a lesion position from a diagnosis target image (col. 19, lines 50-65), and a feature quantity extracting function for extracting image-wise feature quantities of the lesion position detected by the lesion position detecting function (col. 20, lines 26-67).

Takahashi and Kenet are combinable because they are both concerned with diagnosis supporting systems that are based on image processing techniques. Takahashi explains that the "image-wise feature quantities" can comprise a variety of different anatomical structures such as the area of nuclear regions, the area of interstitial regions, ect. (col. 9, lines 30-33). Takahashi

further explains that the feature quantity is not limited to these features quantities, and may be freely chosen by the user (col. 9, lines 33-34 and lines 52-53). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the feature quantity extracting function of Takahashi, so that it extracts image-wise feature quantities of a lesion position detected by a lesion position detection function as taught by Kenet. The suggestion/motivation for doing so would have been to aid the diagnosis of pathological tissue by determining whether a tumor must be removed and to determine the sort of tumor (Takahashi, col. 2, lines 5-12). Therefore, it would have been obvious to combine Takahashi with Kenet to obtain the invention as specified in claim 1.

Referring to claim 2, Takahashi further discloses the step of registering the diagnosis target image and the feature quantities thereof into the database (col. 7, lines 14-18).

Referring to claim 5, Takahashi further discloses that the weighting is set in a variably constituted table (col. 8, lines 24-26).

Referring to claim 6, Takahashi further discloses the step of displaying findings related to the reference images retrieved by the retrieving (col. 9, lines 4-10 and figure 6).

Referring to claim 7, Kenet further discloses that the detecting detects a lesion position of a designated organ (col. 20, lines 27-33. Note that skin is the designated organ).

Referring to claim 8, Kenet further discloses that the extracting extracts a global feature quantity (col. 22, lines 59-65), a topical feature quantity (col. 20, lines 35-58), and a common feature quantity (col. 22, lines 42-47), for every lesion position of the diagnosis target image (col. 19, lines 50-53).

Referring to claims 9, 17, and 25, see the rejection of at least claim 1 above.

Referring to claims 10 and 18, see the rejection of at least claim 2 above.

Referring to claims 13 and 21, see the rejection of at least claim 5 above.

Referring to claims 14 and 22, see the rejection of at least claim 6 above.

Referring to claims 15 and 23, see the rejection of at least claim 7 above.

Referring to claims 16 and 24, see the rejection of at least claim 8 above.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ck
June 30, 2004

Jon Chang
Primary Examiner